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Crude oil trade and current account deficits☆

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ABSTRACT

This paper provides an empirical exploration into the relationship between crude oil trade and a nation's current account for 91 countries over the 1984–2009 period. Reduced oil import dependence may initially reduce a country's general trade deficit under certain conditions. The analysis probes the nature of this relationship and whether it holds equally to oil-importing and oil-exporting countries, after controlling for other exogenous drivers. We find that net oil *exports* are a significant factor in explaining current account surpluses but that net oil *imports* often do not influence current account deficits. Among all oil importers the one exception applies to relatively rich countries, where higher oil imports appear to contribute to greater current account deficits. One explanation for these trends is that oil exporters and wealthier oil importers may view oil income gains and losses as temporary income sources that influence their savings patterns.

1. Introduction

Large oil and natural gas deposits are being discovered and in many cases developed in major oil-consuming and oil-importing countries such as the United States, Canada, and Brazil. Hydraulic fracturing and improved seismic imaging processes have made tight oil and natural gas shale much more available at unexpectedly lower costs (U.S. Energy Information Administration, 2012). As countries reduce their dependence on oil and gas imports, they may reduce their trade or current account balances[1] and make themselves less vulnerable to sudden oil and gas price shocks. Morse et al. (2012) conclude that this new frontier in tight oil and natural gas shale supplies, combined with continued energy-efficiency improvements, could reduce the US current account by 60% within the next eight years (by 2020). See also Medlock et al. (2011, p. 36) for optimistic assessments on the implications of the North American natural gas revolution for the US trade outlook. If these trends also influence exchange rates, it may alter the growth in global oil demand (Austvik, 1987; Brown and Phillips, 1984; De Schryder and Peersman, forthcoming, and Huntington, 1986) or recalibrate the relationship between prices of globally traded crude oil and domestically sourced natural gas within North America (Hartley and Medlock, 2014).

Conceptual reasons exist for expecting that these developments will lead initially to a declining trade exposure to oil and gas price movements as domestic energy production replaces energy imports. Whether these favorable trade conditions will persist depends upon a number of factors that are explained further below in Section 3. Ultimately, however, the issue is empirical. This study adopts a long-term focus in order to evaluate whether favorable oil import or export trends provide beneficial trade balance effects. A longer term perspective is appropriate when policymakers want to understand trends in the current account balances and how sustainable these positions are. The study uses an annual panel data set for 91 countries over the 1984–2009 period to provide an empirical exploration into the relationship between crude oil imports and a nation's current trade account. The analysis probes the nature of this relationship and whether it holds equally to oil-importing and oil-exporting countries as well as to industrial and developing nations, after controlling for other exogenous drivers that could shape a nation's trading response.

The key mechanisms causing a rebalancing of the current account following an oil price movement are reviewed in the next section focusing on a review of the literature. The specification and available data are considered in Section 3. Key empirical findings are presented for all countries and for the post-2003 and several country groups in Section 4. The final section concludes the evaluation and recommends promising future directions.

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[1] The analysis focuses upon current accounts which is a more comprehensive measure than the trade balance. It includes income from domestically owned resources in foreign countries and is therefore consistent with the Gross National Product accounts.

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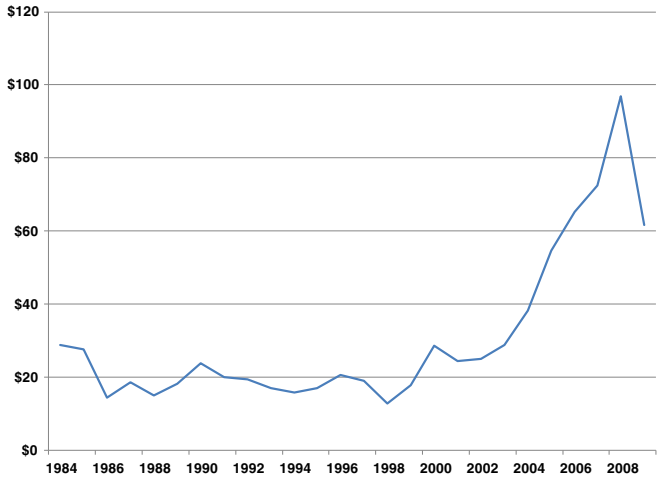

Source: See Table 2.

Fig. 1. European Brent crude oil price (nominal $ per barrel).
Source: see Table 2.

2. Oil and aggregate trade imbalances

This section begins by evaluating whether oil imports and exports appear related to the current account deficits experienced in many countries. It then reviews past empirical studies of the intermediate and long-run current account balances and the reasons for including various explanatory variables. It concludes with a discussion about the potential role for oil trade balances as an additional explanatory variable.

2.1. Linking oil trade and current accounts

A number of price indices exist for measuring crude oil costs in various regions of the world oil market. For the most part, they are strongly related to each other because crude oil is a very fungible product despite important differences in key attributes such as gravity and density. By far, the Brent measure has become the leading global price benchmark for Atlantic basin crude oils, now covering about two thirds of the world's internationally traded crude oil supplies. Unlike the Western Texas Intermediate crude oil price that was used extensively within the United States in previous years, it is not distorted by regional imbalances such as shortages caused by an existing pipeline system that was unable to move crude oil supplies out of the area around Cushing, Oklahoma. Reflecting this problem, the US Energy Information Administration (EIA) has shifted its focus from the WTI and the US refiner acquisition costs to Brent prices when discussing global oil price trends in its Annual Energy Outlook.

The annual trend in the nominal Brent crude oil price in the post-1984 period is tracked in Fig. 1. Oil prices collapsed in 1985 after Saudi Arabia decided to expand its production to recapture some of the market share that it had lost during the previous five years (Jones, 1990). Oil prices began to rise sharply in the post-2004 period when Asian economic growth exploded much faster than expected and available supply remained relatively stable (Hamilton, 2009). Throughout this period, oil prices became much more volatile on a monthly basis (not shown in this figure). On a monthly basis since May 1987, they fluctuated about four times as much as US imports on the basis of their standard deviation divided by the mean.[2]

These oil price movements significantly shifted wealth between oil-importing and oil-exporting nations. As a forerunner to the analysis below, one might ask whether there exists any relationship between the oil trade balance and the country's current trade account. Fig. 2 provides an interesting display of this relationship for 91 countries over the 1984–2009 period. The countries have been separated into those that are net oil exporters with a positive oil-trade balance and those that are net oil importers with a negative oil-trade balance. When the oil trade bill is positive, the country is a net oil exporter. Plots above the horizontal axis reveal the experiences of these countries. There is a noticeable and strong tendency for the current account balance to become more positive as its oil export bill grows in these countries. For the oil-importing countries below the horizontal axis, however, there is no clear trend. Higher oil import bills are not necessarily associated with a deterioration in the current account balance. Solid and dashed trendlines have been inserted to show the separate trends for oil exporters and oil importers, respectively.

Although illuminating and suggestive, this chart does not establish that there is a relationship between these variables and that important differences exist for oil exporters and oil importers. Other factors not included in the figure could cause the trade balance experiences to differ between these two broad groups. Section 3 will develop an approach to test this conclusion by controlling for variations in other key driver variables that have been included in previous empirical studies and that are discussed in greater depth in Section 2.2 below.

2.2. Past current account studies

Policymaking continues to devote considerable attention to the factors and conditions that shape the longer-run trade balance trends and whether these trade positions are sustainable. There exists no comprehensive conceptual model incorporating all possible transmission mechanisms explaining the trends in current accounts balances. Experts differ on what factors lead to long-run periods of current account surpluses or deficits and how sustainable they can be (Mann, 2002). Available panel-data studies by Glick and Rogoff (1995), Debelle and Faruqee (1996), Chinn and Prasad (2003), Chinn and Ito (2007), Gruber and Kamin (2007, 2009) and Bussiere et al. (2004) have confirmed that current account trade balances over the mid to long run are influenced by fundamental factors associated with a country's propensity to save and invest in both the public and private sectors. These studies include structural variables that explain saving and investment levels but exclude near-term fluctuations in the prices and quantities of tradable goods and services and altered external portfolio positions and asset prices. Studies by Chinn and Ito (2007) and Gruber and Kamin (2009) have used this basic framework as a foundation for evaluating other potential mechanisms, such as the quality of institutional investments as a contributor to the trade patterns. Similarly, this savings–investment approach serves a foundation for the analysis developed in this paper.

A central issue has been the role of government budget imbalances. Bernheim (1988) provides a thoughtful discussion of the “twin deficits” hypothesis linking the trade deficits with government budget deficits. If not offset by adjustments in private savings, soaring government budget deficits cause private and public domestic saving to be inadequate to meet profitable domestic investment and government expenditures. Interest rates become higher and the local currency becomes stronger, which attracts foreign capital investment and discourages exports of goods and services. Both effects shift the current account more towards a deficit position, resulting in both government budget and trade imbalances. Indeed, national income accounting identities ensure that the two imbalances should be related. Although there is considerable debate about the precise mechanisms in the government budget's role, the empirical studies identified above tend to confirm that smaller government budget deficits reduce the trade deficit in the mid- to long-term.

These issues currently remain very much in the public limelight. The US current account deficit exploded at a time when US savings faltered,

[2] Based upon data reported on the US Energy Information Administration's website, the normalized standard deviation for the monthly Brent crude oil price is 79.3% and that for monthly US import levels is 20.7% since May 1987.