

Positively Valued Fiat Money after the Sovereign Disappears: The Case of Somalia^{*}

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Abstract:

Economists commonly appeal to sovereign powers to explain the acceptance of unbacked paper money at a positive value. The government accepts or compels taxes to be paid in the money (makes it publicly receivable) or compels creditors to accept it (grants and enforces legal tender status). Thus fiat money is thought to rely on enforcement of a literal fiat or decree. The case of Somalia defies such an account. Following the state's collapse in 1991, unbacked paper Somali shillings continued to circulate at a positive value. We explain how historical acceptance, or "inertia," can sustain the ongoing acceptance of unbacked money even in the absence of ongoing sovereign support. Although sovereign power might be necessary to launch a fiat standard, we conclude that it is not a necessary condition for its survival.

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Ordinary supply-and-demand theory explains the positive value of historical commodity monies such as gold, silver, or salt. Something more is required to explain the positive value of the non-commodity or fiat monies of the present day. Why do transactors place a positive value on paper notes that are useless for any non-monetary purpose and cannot be redeemed for any useful commodity? To say that they value the notes for their use as a medium of exchange is to beg the question: the notes must have a positive value to be useful as a medium of exchange.

Economists commonly invoke sovereign support to explain the positive demand price of fiat money. Given that a “fiat” is a decree, the very label fiat money implies that its monetary character derives from sovereign power. In particular economists cite the government’s power to grant and enforce legal tender status for its favored money, or to specify and enforce the medium for taxation and government expenditures. Here we draw attention to the unusual case of Somalia after the collapse of its national government, where fiat money has retained a positive value through periods without any form of sovereign support. We offer an explanation in terms of historical inertia.

The case for the importance of legal tender powers emphasizes that the government can create a demand for unbacked money by declaring it legal tender for existing debts, thereby compelling creditors to accept it. Some authors use the term “legal tender” (or “exclusive legal tender”) to refer to laws that effectively compel acceptance in an even wider set of transactions, including spot transactions and new debt contracts, by forbidding payment in alternative monies. A representative statement comes from Hershel I. Grossman (1991, pp. 329-30), who in a review essay comments that his “quick reading of monetary history [...] suggests that in practice credible

sovereign power—specifically, the ability to enforce the legal tender status of fiat money—is necessary to create the expectations that support a viable fiat money.”¹

The case for the importance of public receivability similarly emphasizes that a government of sufficient size can create demand for an unbacked money by accepting or requiring its use in tax payments.² Abba Lerner (1947, p. 313) provides a clear statement:

The modern state can make anything it chooses generally acceptable as money, and thus establish its value quite apart from any connection, even of the most formal kind, with gold or with backing of any kind. It is true that a simple declaration that such and such is money will not do, even if backed with the most convincing constitutional evidence of the state’s absolute sovereignty. But if the state is willing to accept the proposed money in payment of taxes and other obligations to itself the trick is done.

By accepting the unbacked money, the government gives the monetary unit a positive value. Others are then able to use the unbacked money to facilitate a wider set of transactions.

There is no disputing that legal tender status or public receivability can enhance the demand for a fiat money and thus may be sufficient to give an unbacked paper money a positive value. But is either measure necessary? A third possibility is that the inertia of historical acceptance is sufficient (Selgin 1994, 2003; Duffy and Ochs 2002). There is little hope of empirically determining what combination of legal tender status, public receivability, and historical acceptance provides the necessary support to a fiat money’s circulation if we limit our attention to monies endowed with all three characteristics. Fortunately an unusual natural experiment—the disappearance of the Somali state in

¹ Grossman was commenting on Kiyotaki and Wright (1989, 1991). We consider those and related papers below.

² The doctrine of chartalism (Knapp 1924; Wray 2000) finds even the historical origin of commodity money in the power to tax. See also Forstater (2006) and Goldberg (2010).

1991—provides us with the rare opportunity to study a currency with only the third of these three forces present. Unbacked paper Somali shilling notes, as we detail below, continued to circulate at a positive value after the state collapsed. This episode provides evidence that sovereign support is not necessary for the continued circulation of an unbacked paper currency.

How does an unbacked currency survive without sovereign support? We offer the explanation that historical experience with a currency's acceptance can create sufficient "inertia," meaning practices and expectations of ongoing acceptance that provide a strategic focal point for traders and thereby perpetuate themselves. As Duffy and Ochs (2002, p. 637) describe their own experimental findings, "people have formed a (rational) expectation that it will continue to serve as a medium of exchange and this expectation need not be supported by any property of the object other than the social convention that has emerged from its use in the past." We discuss this idea—that historical acceptance creates a natural focal point or social convention—and compare our view with the widely used search-theoretic random-matching models of currency acceptance associated with Kiyotaki and Wright.

Our argument can be summarized in the following way. The typical trader finds himself in a coordination game with other traders. He may accept a familiar money today, in preference to an unfamiliar money or cumbersome barter, because he found it widely accepted yesterday and knows that his trading partners found it widely accepted yesterday (and they know that he knows, and that he knows that they know that he knows...). Until he sees evidence to the contrary, he expects other traders to follow the same strategy and thus expects the money to be widely accepted tomorrow. To put the

strategy the other way around, absent some clear death knell for the money, he has no reason to discontinue acceptance before others do. Inertia carries it forward.

We proceed as follows. Section 1 establishes the historical acceptance of the fiat Somali shilling. Section 2 shows that the Somali shilling continued to circulate in the absence of sovereign support (legal tender status or public receivability). Section 3 offers a theoretical explanation of continued circulation in terms of focal-point inertia, and argues that our explanation is consistent with search-theoretic random-matching models of money as a medium of exchange. Section 4 concludes.

1. Historical Acceptance in Somalia: 1960-1991

We briefly review the history of currency acceptance in Somalia between 1960 and 1991.³ In doing so, we establish that Somali shillings were widely accepted throughout the country for a significant period of time prior to state collapse in 1991. We also show that the design of shilling notes was largely unchanged over the period after 1962. These facts bolster our claim that historical acceptance created a salient focal point.

In 1960, British and Italian Somaliland joined to form the Republic of Somalia. Having previously operated as a currency board issuing gold-redeemable “somalo” notes, and then as a central bank under Italian administration, the Mogadishu-based *Cassa per la Circolazione Monetaria della Somalia* was renamed the *Banco Nazionale Somalia*, or National Bank of Somalia, and began to serve as the new nation’s central

³ For a more comprehensive survey of Somali history see Lewis (1955, 1961, 1965, 1993, 1994), whose work provides the standard account of Somalia before and after colonization. Hess (1966) provides a detailed account of Italian colonization.

bank.⁴ New banknotes known as Somali shillings were introduced in December 1962.⁵ The first issue consisted of 5, 10, 20, and 100 denomination notes. The National Bank initially exchanged the new Somali shilling notes one-for-one with the previous currency notes. Numismatic historian Peter Symes (2006a, p. 14) reports that “The new notes were of an equivalent value to the somalo notes they replaced and, in essence, the first issue of the National Bank simply represented the change in issuing authority.” Unlike earlier notes circulating in British and Italian Somaliland, the new notes carried no promise of redemption. By December 1963, the Somali shilling notes had gained widespread acceptance and the legal tender status of the previous currency was retracted.

The second issue of the Somali shillings, occurring in 1966, saw minor changes to the design of the notes. Additional security features, including fluorescent thread and ink, were incorporated for the first time. Denominations remained the same, but borders, watermarks, illustrations, and ornamental patterns were redrawn for all notes. These differences likely reflected the change in printers between the first and second issues, from *Officina Carte Valor-Roma* in Italy to Thomas De La Rue and Company in Great Britain (Symes 2006a, p. 16). Changes were minor, however, and the public apparently showed no hesitation in accepting the new notes. In 1968 and 1972, third and then fourth issue notes—both nearly identical to the second issue—were circulated.⁶

⁴ Throughout most of the colonial period, the Bank of Italy conducted central banking for Italian Somaliland. The *Cassa per la Circolazione Monetaria della Somalia* operated as a currency board from 1950 to 1958, when the Italian government transformed it into a fully-functioning central bank in order to facilitate transitioning to an independent Somalia.

⁵ In order to facilitate circulation, text on the notes appeared in multiple languages. As a result, these notes might also be known as “*scellini*” or “*shilin Somali*.” We use the English version, “Somali shilling,” which appeared in multiple locations on the front and back of the notes (Symes 2006a, p. 14).

⁶ According to Symes (2006a, p. 17), only the issue date, title of one signatory, and names of signatories changed between the second and third issue. The fluorescent ink security feature was not included in third or fourth issue notes (though the fluorescent thread remained) and the form of decree authorizing (and appearing on) fourth issue notes differs from earlier issues. The latter reflects “a subtle change in Somalia’s

Noticeable changes were made when the National Bank of Somalia, under the Barre regime which had taken power in a 1969 coup, released the fifth issue of the Somali shillings banknotes in 1975. Although these notes shared similar colors with earlier notes of the same denomination, new illustrations were chosen and historically white margins were abandoned in favor of border-to-border printing. The fluorescent ink security feature removed in the third issue returned, albeit in a different location. A new watermark was included. In addition to breaking stylistic ties with the colonial past, Italian text on the front of notes was replaced with Somali text in the newly selected Latin script.⁷ Denominations continued to appear in multiple languages, including Arabic and English.

In 1975, the National Bank of Somalia was renamed the Central Bank of Somalia. Three years later, the sixth issue was placed into circulation.⁸ Of the four denominations printed, 10 and 20 Somali shillings notes were nearly identical to the notes printed four years earlier by the National Bank. The color of 5 denomination notes was changed back from brown to red; and some printed near the end of the issue saw the wildebeest and zebras replaced by a herd of water buffalo. The back image of the 100 denomination note, which had contained a group of women sorting fruit and one woman holding a wheelbarrow, was modified to exclude the woman with the wheelbarrow. Despite

political structure” resulting from the success of the Barre regime in October 1969 (p. 17). One further difference affected only the 5 Somali shilling: its color was changed in the fourth issue from red to chocolate brown. Otherwise, the 5, 10, 20, and 100 denomination notes were the same across issues.

⁷ Somali was predominately a spoken language until the Barre regime adopted the Latin script in October 1971 (Abdullahi 2001, pp. xvii, 71-73).

⁸ Symes (2006a, p. 20) refers to these notes as the “first issue,” since they were the first issued under the Central Bank of Somalia. We maintain that, at least with respect to note issue, changes at the bank were merely nominal. The degree of similarity with the prior issue attests to this. As such, we refer to these notes as the “sixth issue.”

changes taking place at the central bank, the notes are remarkably similar to those previously issued.

Two further issues (called X- and KH- series notes, respectively) occurred in 1980 and 1981.⁹ Except for switching the color of ink used for the serial number from black to red in 1980, no substantive changes were made to the look or feel of the notes.

A slight reduction in size for the ninth issue, placed in circulation in 1983, required all notes be redrawn.¹⁰ However, as numismatist Peter Symes (2006a, p. 22) observes, “it often requires a second look to identify the differences between the new notes and the notes they replaced—so similar are the designs.” On second glance, observable differences included a “perfect registration” device in the shape of a Somali star and the Somali coat of arms depicted in a fluorescent disc of ink. Unlike other notes in this issue, the 5 Somali shillings note stands out as an obvious redesign. Furthermore, many of the security features common to 10, 20, and 100 denomination notes are absent from this small denomination note; only the fluorescent coat of arms is used.¹¹ The biggest change in this issue concerned a new denomination—the 50 Somali shillings note—included for the first time in 1983. The design of the new note resembled that of traditional denominations. Notes in this series were reissued in 1986, 1987, and 1988.

In 1989, the Central Bank of Somalia introduced a 500 Somali shillings note for the first time, prompted by a rising price level and the need to finance fiscal deficits arising from military expenses. As with the 50 Somali shillings note issued six years earlier, the design was quite similar to the other notes in circulation. Fluorescent series

⁹ The seventh issue (X-series) consisted of 10, 20, and 100 denomination notes; only 20 and 100 denomination notes were printed in the eighth issue (KH-series).

¹⁰ The 100 Somali shilling note, for example, was reduced from 165x80 mm to 148x74 mm.

¹¹ Symes (2006a, p. 22) maintains that available features were likely foregone to keep production costs down for the low-valued note.

and serial numbers were incorporated to make the higher denomination note more difficult to counterfeit. As the Barre regime struggled to suppress the revolution, deficits increased and inflation further eroded the value of Somali shillings. The Central Bank introduced a 1000 denomination note in 1990. The 500 Somali shillings—identical to those issued in late 1989—was the only other denomination printed in this eleventh issue.

Table 1. Changes Made to Somali Shillings Notes, 1962-1991

<i>Issue</i> ¹	<i>Year Placed in Circulation</i>	<i>Issuing Bank</i>	<i>Printer</i>	<i>Substantive Changes</i> ²
First	1962	NBS ³	Officana Carte Valor-Roma	
Second	1966	NBS	Thomas De La Rue and Co.	Borders, watermarks, illustrations, and ornamental patterns redrawn; fluorescent thread and ink security feature added
Third	1968	NBS	Thomas De La Rue and Co.	Fluorescent ink security feature no longer included
Fourth	1972	NBS	Thomas De La Rue and Co.	Color of 5 SOS changed from red to brown
Fifth	1975	NBS	Thomas De La Rue and Co.	New illustrations; border-to-border printing; fluorescent ink security feature returned; Sayid Mohammed Abdullah Hassan watermark
Sixth (First)	1978	CBS ⁴	Thomas De La Rue and Co.	Woman and wheelbarrow removed from 100 SOS; color of 5 SOS changed back to red; wildebeests and zebras replaced by herd of water buffalo on some 5 SOS
Seventh (X Series)	1980	CBS	Thomas De La Rue and Co.	Color of series and serial numbers changed from black to red
Eighth (KH Series)	1981	CBS	Thomas De La Rue and Co.	
Ninth (Second)	1983 ⁵	CBS	Thomas De La Rue and Co.	Reduced size; Somali star registration device; fluorescent coat of arms; 50 SOS introduced
Tenth (Second)	1989	CBS	Thomas De La Rue and Co.	500 SOS introduced
Eleventh (Second)	1990	CBS	Thomas De La Rue and Co.	1000 SOS introduced

Notes:

- Issue names in parentheses reflect classification system employed by Symes (2006a).
- We omit changes in the names of signatories, positions held by signatories, form of decree authorizing notes, title of issuing authority, series identifier, and other items not immediately noticeable to the casual observer.
- National Bank of Somalia.
- Central Bank of Somalia.
- Notes in this series were reissued in 1986, 1987, and 1988.

When the Barre regime lost power in 1991, the Somali shilling had continuously circulated for nearly thirty years. As Table 1 summarizes, the design of the notes had changed only minimally over this time, with the most substantive changes (arising shortly after Barre took power) occurring more than fifteen years before the state collapsed. We conclude from these facts that the people of Somalia had become (1) quite familiar with Somali shillings notes and (2) accustomed to accepting them in exchange. Historical acceptance, we will argue, created the common beliefs that permitted these notes to circulate long after the sovereign disappeared.

2. Continued Circulation in Stateless Somalia

In this section, we show that the Somali shilling continued to circulate in the absence of sovereign support (legal tender status or public receivability). First, we briefly detail the fall of the Barre regime in order to substantiate our claim that the government of Somalia ceased to exist in 1991. Second, we provide accounts of Somali shilling use in the post-1991 period. Third, we detail the regional governments of Somaliland and Puntland established in May 1991 and August 1998, respectively, which might reasonably be considered sovereign powers. Excluding periods of possible government support from Somaliland and Puntland, we conclude that individuals continued to accept Somali shillings without anything resembling sovereign support from January 1991 to May 1991 and, again, from January 1995 to August 1998.

2.1 State Collapse

The end of the Somali state has been presented in much more detail elsewhere, and is only briefly described here to establish a start date for the acceptance of the Somali shilling without sovereign backing. In doing so, we reaffirm the widely held opinion that, when the Somali state disappeared, a new government did not replace it.

In January 1991, more than four years after civil war began, then-President Siad Barre fled the capital city of Mogadishu as it was overrun by the Somali National Alliance. Barre was nominally replaced by Northern Mogadishu businessman Ali Mahdi Muhammad. However, the Somali National Alliance, comprised of several clans and subclans, was divided on the issue of who would make a suitable replacement. As a result, the alliance splintered along traditional lines and its groups “quickly fell to fighting one another” (Gregory 1992, p. 34). By September 1991, as many as twelve clans and subclans vied for power (Fitzgerald 2002, p. 18). Boutros-Ghali (1999, p. 53), appointed UN Secretary-General in January 1992, provides a clear statement:

Throughout 1991 Somalia was torn by factional fighting. With no central government, the country fragmented as rival militias fought for food, prestige, and territory. As one of the world’s poorest countries, Somalia had little to rely on in time of trouble. Schools closed. There was no electricity. Local government disappeared.

The government of Somalia, which had introduced and supported the Somali shilling, ceased to exist.

By mid-1992, the struggle for power in Somalia largely centered around two Hawiye subclans: *Abgaal* led by General Mohamed Farrah Aideed and *Habar Gidir Saad* led by Ali Mahdi Muhammad. UN efforts authorized in April 1992 as UNOSOM I were aimed at providing humanitarian relief; and the US led multinational initiative known as UNITAF launched in November 1992 attempted to provide a secure environment for the

distribution of humanitarian relief. Neither aimed to restore government in Somalia. In contrast, UNOSOM II, which began in March 1993, attempted to disarm the various factions and establish a representative democracy. It was entirely unsuccessful in doing so. When the UN pulled out in March 1995, neither faction had ceded power. Somalia remained without a functioning government.¹²

Since 1991, the Polity IV project has consistently classified Somalia as “interregnum,” i.e., between sovereigns (Marshall and Jagers 2009). “Between January 1991 and August 2000,” Marshall and Jagers (2008, p. 2) state, “Somalia had no central government. Instead, government in this country consisted of a variety of overlapping and fluid local authorities that included private militias, clan elders, and fundamentalist mosques.” We conclude that the previous issuer of the Somali shilling provided no sovereign support for it after 1991.

2.2 Continued Acceptance

Those involved with the humanitarian relief effort in Somalia have provided eyewitness testimony that the Somali shilling continued to circulate after the state collapsed. In 1992, the Office of Foreign Disaster Assistance at USAID devised a plan to sell a portion of food aid to merchants in order to fund NGO projects employing Somalis in more stable areas of the country (Lewis 1992). Andrew S. Natsios (1997, p. 87-89), who served as assistant administrator for the Bureau for Food and Humanitarian

¹² Although no one to our knowledge denies that Somalia remains a difficult place to live, several studies point to the relative success of Somalia in the post-1991 period. By comparing scores of 18 development indicators, Leeson (2007) finds that Somalia has performed better without a state. Powell et al. (2008) offer evidence that Somalia even improved relative to comparable countries in the region. See also: Nenova (2004), Nenova and Hartford (2004), Coyne (2006), Leeson and Boettke (2009), Leeson and Williamson (2009), and Coyne and Leeson (2010).

Assistance at the time, reports that food aid was exchanged for “local currency.” Since the Somali shilling continued to be accepted, it was only natural for relief workers making transactions in the area to adopt the local currency.

Foreign currencies had begun to circulate in Somalia before the state collapsed, as inflation picked up under the Barre regime. American dollars, Ethiopian birr, Saudi riyals and dirhams of the United Arab Emirates came into use (Symes 2006a, p. 26). Following state collapse, those conducting large transactions with foreign currencies used the Somali shilling for making change. Others, including small businesses, market traders, and the poorer sections of the community, continued to use the Somali shilling as their primary medium of exchange (Symes 2006a, p. 26). In summarizing the economic performance of Somalia, Mubarak (1997, p. 2031) provides a clear statement:

One of the most astounding phenomena of the domestic market is the continued circulation of the old Somali bank notes. The Somali currency has had no central bank to back it up since the bank was destroyed and looted in 1991. Nonetheless, the currency has maintained value, and has floated against other foreign currencies that are traded freely in local markets.

Mubarak goes on to say that “the US dollar has gradually emerged as a backup currency for the Somali shilling,” largely due to UN mandates, export proceeds, and remittances from abroad (p. 2031). Drysdale (2001, p. 51) describes the “Mogadishu *Bakara* currency market” in 1992, “where, in common with banks of computerized sophistication, the Somali shilling floats against foreign currencies at daily transaction rates.” On March 31, 1992, for example, US\$1 equaled 3,800 Somali shillings (Fitzgerald 2002, p. 18). These accounts clearly indicate (and none we are aware of dispute) that the Somali shilling continued to circulate in the post-1991 period.

Indirect but convincing evidence that the Somali shilling held a positive value in the absence of sovereign support is that Somali individuals found it profitable to hire foreign firms to counterfeit the notes.¹³ Mohammed Farah Aideed ordered roughly 165 billion Somali shillings in 1996 from the British American Banknote Company based in Ottawa, Canada. Another 60 billion Somali shillings were imported by Mogadishu businessmen in 2001. In total, an estimated 481 billion in unofficial Somali shilling notes have been printed since 1991 (Symes 2006a, p. 29).¹⁴

2.3 Regional Governments in Stateless Somalia

Although Somali shilling notes have circulated continuously since state collapse and, in fact, are still accepted throughout Somalia today, the existence of two regional governments—the Republic of Somaliland and the Puntland State of Somalia—qualifies our claim that these notes have circulated without sovereign support. We address each in turn.

2.3.1 Somaliland

In May 1991, faction leaders primarily from the Issaq clan declared independence in northwest Somalia, creating the Republic of Somaliland. Somaliland has not been officially recognized internationally. However, the government of Somaliland provides national defense, police protection, and issues passports for foreign travel (Bekele 2009).

¹³ Assuming transportation costs of roughly \$0.02 per note, we estimate that profits from seigniorage were reduced to zero by 2002. See: Mubarak (2003, pp. 320-21), Luther (2011).

¹⁴ We exclude the initial issue of 24 billion New Somali shillings ordered by the Central Bank of Somalia prior to state collapse, but not placed into circulation until Ali Mahdi received them in May 1991, and another 90 billion in unofficial New Somali shillings ordered and circulated by Northern Mogadishu businessmen thereafter. As these notes were never introduced by the government of Somalia, their circulation in the post-state period is of little relevance here. The interested reader is directed to Drysdale (2001, pp. 33, 50-52), Symes (2006a, pp. 25-29) and Mubarak (1997, 2003).

Along with US dollars, Ethiopian birr, and Djibouti francs, Somali shillings initially served as the new nation's medium of exchange. In 1994, Somaliland established a central bank. The Baanka Somaliland immediately drafted a plan to introduce a national currency, receiving official endorsement from the Somaliland parliament in September 1994. New notes—denominated 5, 10, 20, 50, 100 and 500 Somaliland shillings—began circulating in November 1994 with a fixed exchange of 1:100 with the Somali shilling.¹⁵ Nearly three months later, on January 31, 1995, the Somaliland government stripped the Somali shilling of its legal tender status, thus ending the period of any possible sovereign support for the traditional notes (Symes 2006b, p. 20).

Conceivably the government of Somaliland, by receiving Somali shillings in tax payments, provided necessary sovereign support for Somali shillings from May 1991 to January 1995. That it *actually* provided such support—that individuals in Somaliland and Somalia would not have accepted Somali shillings if the Somaliland government had not—is doubtful. The government of Somaliland presumably would have preferred to collect seigniorage on its own notes from the outset. It likely accepted the Somali shilling at first because the public already did, rather than the reverse.

2.3.2 Puntland

In August 1998, leaders of the Somali Salvation Democratic Front declared autonomy in northeast Somalia, known today as Puntland.¹⁶ Unlike leaders in

¹⁵ Following the period of exchange, the government of Somaliland sold its holdings of Somali shilling notes to businessmen making transactions in Somalia and Ethiopia (Symes 2006b, p. 21). The sale of notes provides additional evidence that the Somali shilling circulated at a positive market value outside of Somaliland.

¹⁶ The SSDF, whose supporters are primarily from the Majerteen clan, was formed in opposition to the Barre regime in the late 1970s.

Somaliland, the SSDF did not establish Puntland in an effort to secede from Somalia. The Transitional Constitution of Puntland Regional Government declared the territory “an independent integral part of Somalia” with an “obligation to restore and maintain the unity of Somalia on the basis of a Federal System.” In terms of restoring order and providing public services, Puntland has been somewhat less successful than neighboring Somaliland.

Although the Puntland administration has been relatively ineffective at governing the territory, it is somewhat more plausible that Puntland has provided important sovereign support for the Somali shilling than that Somaliland has. The objective of the government of Puntland, to restore and maintain the unity of Somalia, might be interpreted as a commitment to supporting the Somali shilling. Consistent with this interpretation, the State Bank of Puntland imported Somali shillings from the Indonesian-based company Pt. Pura Baru Kudud in 1999 and soon began issuing them (Mubarak 2003, p. 318). Whether the Puntland administration truly aimed at perpetuating acceptance of the Somali shilling or merely hoped to capture seigniorage like counterfeiters in the south, their efforts in either case might be construed as sovereign support. Given the potential sovereignty of Puntland and its presumed intention to perpetuate the Somali shilling, it is conceivable that the regional government provided critical sovereign support for the currency since its inception in August 1998.

If either Somaliland or Puntland or both are taken to be sovereign supporters, then the Somali shilling has not circulated without sovereign support over the *entire* post-1991 period. Even so, there remain periods clearly without sovereign support (legal tender status or public receivability). From January 1991 to May 1991 and, again, from January

1995 to August 1998, transactors continued to accept Somali shillings without sovereign backing. To what extent sovereign support played a role outside these periods remains to be determined.

3. A Theoretical Explanation

Many economists express surprise upon hearing that unbacked Somali shillings continued to circulate after the state collapsed.¹⁷ We argue that such a circulation is entirely consistent with the predictions of well-known models of money as a medium of exchange.

Under the search-theoretic, random matching models of Kiyotaki and Wright (1989, 1991, 1993) the bilateral exchange restriction introduces a double coincidence of wants problem *a la* Jevons (1875) and thereby creates an opportunity for at least one commodity to serve as a commonly accepted medium of exchange.¹⁸ Since all commodities in this environment are consumed, there is no fear of being stuck with something useless: an agent holding a commodity as a medium of exchange will eventually be matched with another agent desiring it for consumption. Accepting fiat money, which exists in the model space as a fixed endowment that no player type produces or consumes (i.e., it is intrinsically useless), is a very different matter. An agent faces the possibility of being stuck with fiat money forever since, by definition, no one consumes the intrinsically useless good. Although certain specifications yield steady-state

¹⁷ They are perhaps extrapolating from the worthlessness of the Confederate States of America dollar at the conclusion of the US Civil War, a currency repudiated by the victorious Union and replaced by the US dollar. In Somalia, by contrast, there was no new national sovereign, and no other party able to force a replacement currency into nationwide use.

¹⁸ By endogenizing the matching process, Corbae, Temzelides, and Wright (2001, 2002) confirm that the bilateral exchange restriction drives the result.

equilibria where fiat money circulates as the commonly accepted medium of exchange, the environment is generally characterized by multiple equilibria. Thus, whether fiat money attains a positive value and circulates depends crucially on the beliefs of agents. If everyone believes others will accept fiat money, it will circulate. But if no one believes others will accept fiat money, it will not circulate. The success or failure of fiat money in this formulation is a self-fulfilling prophecy. As such, sovereign support is not strictly necessary to generate acceptance.

3.1 Government Support in the Kiyotaki-Wright Environment

Although the existence of equilibria where fiat money is accepted in the Kiyotaki-Wright environment does not require sovereign support, the prevalence of government in the modern era arguably warrants its inclusion. Aiyagari and Wallace (1997) and Li and Wright (1998) introduce government transaction policies into the Kiyotaki-Wright framework. Specifically, they classify G agents in the population of size N as government agents. These agents are randomly matched and employ trading strategies like other agents. Whereas non-government agents choose individual trading strategies to maximize their own private utility, government agents act under instructions that specify their trading strategies. In such an environment a *sufficiently big* government is capable of determining the commonly accepted medium of exchange by insuring that a large enough share of agents will accept that medium. “How big is sufficiently big,” Li and Wright (1998, p. 312) explain, “depends on several factors, including properties of the money, the presence of alternative means of payment, and other aspects of policy.” Aiyagari and Wallace (1997, p. 11) even suggest that “historical instances in which a government

failed to determine what the public used in its transactions” might have occurred because “the government was not large enough.”

Let $G_t^*/N_t^* = g_t^*$ be any proportion of the population classified as government agents, committed to accept the intrinsically useless item x , large enough to insure that x serves as money at time t . Let $t = 0$ designate an initial date at which x is adopted as money, and $t = 1$ a later date at which x has already been circulating for a time. The condition $g_t^* > 0$ indicates that x requires some positive degree of sovereign support to serve as money at time t , while $g_t^* \geq 0$ indicates that x can serve as money at that date even with zero sovereign support. Neither Aiyagari and Wallace (1997) nor Li and Wright (1998) explicitly consider what would happen if the government were to disappear, but four possibilities follow from their models: $g_0^* \geq 0$ at both dates, at the first date only, at the second date only, or at neither date. We focus on the following three cases.¹⁹

Case 1. $g_0^* \geq 0; g_1^* \geq 0$

This case is fundamentally the same as those proposed by Kiyotaki and Wright (1989), where no government support is necessary for the intrinsically useless item to serve as money in equilibrium. Should a government happen to exist at $t = 0$ but disappear, x would continue to circulate, as the previously existing government is unnecessary for its initial and continued acceptance.

Case 2. $g_0^* > 0; g_1^* > 0$

¹⁹ We omit the case where sovereign support is unnecessary for initial adoption of a money, but is necessary to its continued acceptance.

In this case, government is necessary to establish and to perpetuate x , its chosen currency, as the medium of exchange. The disappearance of government after the date at which it established x as money would result in a new equilibrium where some money $y \neq x$ prevails.

Case 3. $g_0^* > 0; g_1^* \geq 0$

Like Case 2, the minimum size of government required to initially establish x as money in Case 3 is greater than zero. However, Case 3 differs in that zero government support is required for x to continue as money after it has gained general circulation for a time. In other words, government is necessary to establish x as a commonly accepted medium of exchange, but unnecessary to perpetuate continued acceptance.

Of these three cases, only Case 2 is inconsistent with the historical episode of Somalia described above. This of course does not imply that Case 2, where government support is essential to the survival of the money ($g_1^* > 0$), never holds. It merely means that Case 2 does not hold in the particular case of Somalia considered here.

For Case 1 to best represent the historical episode would imply that the government of Somalia played no significant role in establishing the Somali shilling as the commonly accepted medium of exchange. If the government did not determine the money prior to state collapse, it is not surprising that this money persisted in the absence of government support. Although Case 1 may conceivably hold for other fiat monies,²⁰ it is difficult to believe that the Somali shilling would ever have been created or introduced—never mind gaining widespread acceptance—if the government of Somalia had not existed.

²⁰ See Moulton (2011) on the example of Bitcoin, an online payment medium that appears to be a positively valued private fiat money.

Case 3 offers a more plausible characterization of Somalia's experience. It says that the government of Somalia played a significant role in launching the Somali shilling as a commonly accepted medium of exchange ($g_0^* > 0$), but its support later became unnecessary to sustain the shilling's use as money ($g_1^* \geq 0$).

In Case 3 $\min(g_t^*)$ changes through time. We need to explain why it changes if we are to offer an analytically satisfying account of the Somali experience. We propose that historical acceptance can plausibly explain the change, and now turn to spelling out how it does so. In brief, we argue that historical acceptance reduces the need for government to sustain a money indefinitely by providing a basis for self-sustaining transactor beliefs.

3.2 Historical Acceptance and the Beliefs of Agents

Consider the beliefs of agents in the Kiyotaki-Wright models described above. Agents will accept fiat money if and only if they believe that others will do likewise (Kiyotaki and Wright 1991, p. 216). Hence, the emergence of a fiat money in the models depends crucially on the ability of agents to form convergent beliefs about the beliefs held by others. As Duffy (2001, p. 297) observes, "agents almost certainly do not begin a process of social interaction with equilibrium beliefs but must adjust their strategies to their evolving historical experiences within a given trading regime." Thus it is important to consider "how play evolves when agents are placed in the Kiyotaki-Wright environment."²¹ Furthermore, if historical cases are to be considered, the simple

²¹ Experimental studies with human subjects in the Kiyotaki-Wright environment generally support the hypothesis that beliefs converge toward their equilibrium states (Brown 1996; Duffy and Ochs 1999, 2002; Duffy 2001). However, human subjects are reluctant to accept items with higher storage costs, even when doing so would significantly decrease the number of periods one must hold the item before being able to

Kiyotaki-Wright environment (with three consumption goods and one intrinsically useless item) must be extended to include many more goods and presumably an infinite number of intrinsically useless items.²² In light of the existing experimental evidence, we should not assume humans acting in this complex Kiyotaki-Wright environment are initially endowed with equilibrium beliefs but rather that they acquire beliefs through time as they interact with others.²³

Analyzing acceptance in terms of belief acquisition provides another way of understanding the role sovereign support can play in establishing a transactions medium. In addition to establishing demand for the supported money, and thereby giving it a positive value, sovereign support in the form of public receivability or legal tender status creates a focal point on which individuals can coordinate. Creating a focal point is crucial because the network property of money—the payoff associated with any particular medium of exchange increasing in the number of players coordinating on that particular monetary unit—creates a large-scale coordination game in choosing which potential money or monies to accept.

Historical acceptance can play a similar role in creating a focal point. Observing the acceptance of x as money by others yesterday, it is reasonable for an agent to infer, in the absence of disconfirming information, that those others will accept x today. In this respect, our perspective is similar to that of Selgin (1994, 2003), who considers the implications of adaptive learning for transitioning from barter or commodity money to

trade for one's consumption good (Duffy 1998, pp. 18-22). Other attempts at considering monetary exchange in the lab include McCabe (1989), Marimon and Sunder (1993, 1994, 1995), Bernasconi and Kirchkamp (2000), Camera et al. (2003), Deck et al. (2006), Hens et al. (2007), and Camera and Casari (2010). Duffy (2010) provides a survey.

²² In their primer on the search-theoretic approach to money, Rupert et. al (2000) allow for a greater variety of goods.

²³ Marimon et al. (1990), Basçi (1999), Staudinger (1998), and Duffy (2001) take a similar approach in modeling artificial agents in the Kiyotaki-Wright environment.

fiat money, and discusses the importance of first establishing routine acceptance at a known value (through an initial period of redeemability for an established currency, as the Somali shilling had with the previous currency) before launching a new fiat money.

That either historical acceptance or sovereign support can provide a focal point suggests that the two may be substitutable in the following sense. Sovereign support provides a focal point, prompting initial adoption, when $g_0^* > 0$. Over time, as individuals gain shared experiences of the currency being accepted, less sovereign support is necessary. We may assume that $\partial \min(g_t^*) / \partial \alpha < 0$ until $\min(g_t^*)$ reaches zero. After some span of time ($t_1 - t_0$), routine acceptance becomes itself a sufficient focal point.

Thereafter historical acceptance perpetuates the previously accepted currency without the need for any ongoing sovereign support ($g_1^* \geq 0$). Given this rational basis for the decline in $\min(g_t^*)$ over time, Case 3 reasonably characterizes the continued positive value of the fiat Somali shilling even after the sovereign disappeared in Somalia.

We can restate and summarize our preferred account of the Somali shilling in terms of the focal-point concept. Sovereign support, together with historical continuity from the previous currency, created a focal point that allowed the successful introduction of the Somali shilling. From 1962 to 1991 the government of Somalia continued to maintain the currency in more or less its traditional form. Following state collapse, Somalis found themselves in a large-scale coordination game regarding the choice of which media of exchange to accept. This was fundamentally the same game they had been playing prior to state collapse, with the exception that the government no longer existed to anchor beliefs. Continuing to accept the Somali shilling now carried some risk: one might be unable to trade the notes for consumption goods in the future because others

might stop accepting them. Commodities and foreign currencies were less risky in this regard because they could always be traded for their use-value (in the case of commodities) or for goods abroad (in the case of foreign currencies). However, Somalis typically trading with other Somalis had no obvious way of coordinating on a commodity or foreign currency. None of the alternatives to the familiar Somali shilling was particularly salient. In contrast, all Somalis had prior experience with routinely accepting the Somali shilling and all Somalis knew all other Somalis shared this experience.²⁴ The long historical period of common acceptance acted as an anchor comparable to that of sovereign support. Somalis continued to believe, at least provisionally, that other Somalis would accept Somali shillings in exchange and, by continuing to accept the notes themselves, reinforced this provisional belief in others. In the case of Somalia, historical acceptance appears to have been sufficient to sustain widespread mutual acceptance in absence of sovereign support.

4. Conclusion

The case of Somalia indicates that sovereign support—in the form of legal tender laws or public receivability—is not a necessary condition for the continued circulation of fiat money. Following state collapse, Somali shillings continued to circulate as a commonly accepted medium of exchange. After considering the potential role of regional governments, including the Republic of Somaliland and the Puntland State of Somalia, we find that Somali shillings continued to circulate without sovereign support at least from January 1991 to May 1991 and, again, from January 1995 to August 1998. We

²⁴ Bacharach (1993) provides one plausible way of modeling the social, subjective nature of beliefs. Applied to a standard coordination game, his approach has demonstrated predictive power in the laboratory (Bacharach and Bernasconi 1997).

suggest that it was the inertia provided by historical acceptance that allowed stateless Somali shillings to continue circulating. Somalis had no reason to stop accepting the familiar money at a positive value before others did, so they continued to accept it.

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