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Micronutrients and Children's Cognitive Development

Micronutrients are essential for proper physical growth including the development of the brain, functioning of the immune system, and other bio-chemical processes in the human body. Since physical growth mostly happens in utero and in childhood, micronutrient deficiencies early in life are supposed to have large and potentially irreversible adverse consequences later in life. Iodine and iron are known to be the two micronutrients, which are indispensable for the development of the brain and the emerging cognitive functions as well as for resistance against infections. Low cognitive ability leads to diminished concentration and disturbance in perception. Especially in combination with a poor immune system and hence poor ability to resist infections, this leads to low learning ability and low educational achievements. Low educational achievements generally translate to low individual productivity, low work capacity and hence income poverty, which in turn often means a non-diverse diet with low micronutrient intake. This self-enforcing relationship is known as the micronutrient poverty trap.

The provision of nutrition supplements and of micronutrient fortified foods are considered to be promising means to break the micronutrient poverty trap and hence to overcome the intergenerational transmission of poverty. With limited resources, policy makers have to trade off different interventions to deliver micronutrients to the population in need.

Our study aims at identifying the possible medium term causal effects of the distribution of double fortified salt (DFS), which includes iron and iodine, at the school level on child health outcomes, cognitive development and educational outcomes. We use the cooked meals program in primary schools in India known as Midday Meal (MDM) as delivery channel for the proposed iodine and iron intervention. The midday meal covers more than 100 million children. It is the largest school-feeding program in the world. This approach is promising because firstly it directly targets one of the groups for whom iodine and iron are crucial - children of income poor families. Secondly it does not depend on individual changes in nutrition and purchasing habits but is directly delivered free of cost through the MDM such that no active change on the household level is required.

Effects of the distribution of the DFS are evaluated by conducting a randomized controlled trial in two blocks in rural Bihar, India. From 228 governmental schools, which exist in these two blocks, 108 schools have been randomly selected. Out of these 108 schools, 54 were randomly selected to receive the DFS to prepare the MDM whereas the other 54 schools function as control group and do not receive any treatment. On average 20 children from the second grade were selected from each of the 108 schools for the survey. This results in an overall sample size of about 2000 children. The RCT methodology allows us to interpret mean differences in outcomes between the two groups as causal effects of the intervention.

From September 2014 till December 2014 the baseline study was carried out. We conducted simple reading and math tests as well as specially designed intelligence tests with the children. We further measured their hemoglobin level to detect iron-deficiency anemia. In addition to the children's data which is essential for the evaluation of the provision of DFS through the midday meal, descriptive data on the functioning of the MDM program and a comprehensive household dataset for each of the 2000 children has been collected. The first follow-up survey will be conducted in 2016. In order to capture long-term effects of the DFS intervention, a further follow up survey is planned for 2018. The study acknowledges funding of the Fiat Panis Foundation and the DFG RTG Global Food. It is conducted jointly with Santosh Kumar from Sam Houston State University. We received approval from the responsible office for the midday meal in Bihar and study results will be shared with local decision makers to improve the future design of the program.

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Global macroeconomic uncertainty

The severity of the recent Great Recession which started with the U.S. subprime crisis in 2007 and which led to strong economic downturns in both developed and developing countries may have at least in part been caused and most certainly been amplified by a dramatic increase in economic uncertainty. Uncertainty impacts economic activity through three different channels: real-options effects make firms more cautious about hiring and investing, and consumers more cautious about buying durables, risk-premium effects raise the cost of finance and precautionary savings effects reduce consumption spending.

An emerging literature investigates the potential impact of uncertainty on economic activity and its role as a driving force of economic crises. One strand of the literature uses firm-level data with a focus on analyzing the impact of exogenous changes in volatility (or second moment shocks) on the real economy. In this empirical work uncertainty is proxied by a number of different measures, such as the implied or realized volatility of stock returns, the cross-sectional dispersion of plant-level shocks to total factor productivity, survey-based forecaster, or the appearance of uncertainty-related keywords in news publications. A second strand of the uncertainty literature obtains measures of macroeconomic uncertainty from aggregate time-series data on inflation and output growth rates. The two approaches most frequently utilized are stochastic volatility and GARCH models, both of which have been shown to yield comparable results relative to survey-based measures of inflation and output growth uncertainty. Whereas a number of studies in this literature focuses exclusively on the effects of inflation uncertainty, other studies analyze both inflation and output growth uncertainty simultaneously All of these papers provide strong evidence of one-way or two-way causal relationships between many of the possible bilateral combinations of inflation, output growth and their respective second moments.

A common feature of the uncertainty literature is their focus on the national incidence of uncertainty in individual countries. However, uncertainty at the global level may constitute an independent and important determinant of the international reach of financial and economic crises. We have investigated the global dimension of macroeconomic uncertainty in a previous article that relates to the literature measuring macroeconomic uncertainty using aggregate time-series data on output growth.

In Berger et al. (2015) we identify global and country-specific measures of output growth uncertainty for a large OECD country sample. To this end, we draw on the literature of international comovements of macroeconomic variables using a dynamic factor model (DFM). DFM have been utilized to detect international business cycles or global inflation dynamics. Whereas this literature defines comovement as common shocks to the mean, we utilize the model to analyze global macroeconomic uncertainty in terms of the second moments of common shocks. In particular, we set up a latent dynamic factor model to decompose output growth in each country into common (or global) and country-specific factors. The conditional factor variances are modeled as stochastic volatility processes and interpreted as reflecting uncertainty in the underlying factor. The global factor reflects common fluctuations in output growth across all sample countries, and may be interpreted as the global business cycle. We estimate our dynamic factor model using quarterly data on the annualized log change of GDP. Our sample includes 20 industrialized countries and covers the period from 1970Q1 to 2013Q4.

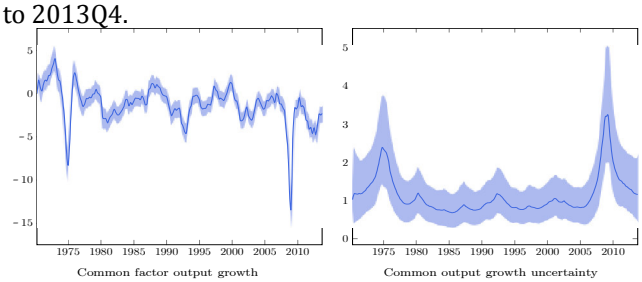

Figure 1: Common factor output growth and its uncertainty

As displayed in Figure 1, our estimated measure of output growth uncertainty shows evidence for major bouts of global uncertainty in the early 1970s and late 2000s, and a number of periods with elevated levels of either global or national uncertainty, particularly in the early 1980s, 1990s and 2000s. Furthermore we find evidence suggesting that the Great Moderation has overwhelmingly been a global phenomenon. We go on to assess the impact of global uncertainty versus country-specific uncertainty on macroeconomic performance. The literature proposes different transmission channels through which uncertainty shocks might have an influence on real macroeconomic variables. By separately analyzing consumption, investment and the trade components of aggregate demand we shed light on the particular channels through which uncertainty potentially affects the real economy. To this end we estimate VAR models to study the response of output, consumption, investment, imports and exports to global and domestic uncertainty shocks. The VAR impulse responses reveal that global uncertainty is the major driver of macroeconomic performance in most countries, whereas the impact of national uncertainty is small and frequently insignificant. We also find that uncertainty is transmitted primarily through investment and trade flows rather than through consumption demand in most countries of the sample.

Berger, Tino, Grabert, Sibylle, Kempa, Bernd (2015) Global and country-specific output growth uncertainty and macroeconomic performance. Oxford Bulletin of Economics and Statistics, forthcoming

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Free Trade Agreements and the Eastern Partnership

A European crisis erupted at the Eastern Partnership (EaP) Summit in Vilnius on 28-29 November 2013. Armenia declined to initial its Association Agreement recently concluded with the EU, including a deep and comprehensive free trade agreement (DCFTA), and Ukraine postponed signing an already initialled DCFTA agreement with the EU. Signature was subject to prior fulfilment by Ukraine of conditions concerning inter alia its application of 'selective justice', e.g., the trial and imprisonment of former Prime Minister Yulia Timoshenko after Viktor Yanukovich assumed the Presidency in January 2010. Only Georgia and Moldova initialled their Association Agreements.

Subject to Russian pressure, Armenia had announced already in September 2013 that it would instead join the Eurasian Customs Union proposed by Russia. Russia threatened to withdraw its troops which protected the many Armenians in the region of Nagorno Karabahk in Azerbaijan. Also, President Yanukovich of Ukraine announced shortly before the Summit that he would postpone signing the Association Agreement with the EU. This led to prolonged and violent demonstrations in Maidan Square in Kiev and ultimately to civil war. Yanukovich fled the country on 21 February 2014 and the following day Parliament elected a provisional President and installed a new government. In the Autonomous Republic of Crimea and the self-governing district of Sevastopol separatists organised a referendum on 16 March and each voted to accede to Russia. On 21 March, President Putin signed documents admitting them into the Russian Federation. Moscow time and the Russian Ruble were introduced soon thereafter. Since then, a civil war rages in Eastern Ukraine regions between separatist groups in Donetsk and Luhansk, supported by Russia, and the Ukrainian army.

Transition to democracy and to market economy has been late and slow in most EaP States. Georgia and Moldova lead in terms of democracy and a free press and score well ahead of the others in ease of doing business and low levels of corruption. While further efforts are needed in competition policy, governance and enterprise restructuring, they are off to a good start. Armenia and Ukraine are borderline cases as concerns transition to both democracy and market economy and score poorly in terms of corruption and trust. Armenia, with low scores on democracy and free press and significant corruption, chose not to sign. After initial difficulties, Ukraine signed its DCFTA in June 2014 and now needs peace and quiet to focus its efforts on institution building. The prospects for this are poor. Belarus and Azerbaijan do not yet qualify for a DCFTA at all being centrally planned economies, non-members of WTO, highly corrupt and autarchic.

In Gylfason, Martínez-Zarzoso, and Wijkman (2015), we consider some economic and geopolitical aspects of this violent crisis. Do the EaP countries benefit more from free trade agreements with their Eastern partners than with their Western partners? is the quality of institutions influencing trade flows? We compare the effects of both deep and shallow free trade agreements (FTAs) with the EU that EaP countries signed with similar agreements they signed with Russia. We investigate the role played by the quality of respective institutions (democracy and corruption) in fostering trade. The estimation strategy is based on the gravity model of trade, which follows the most recent literature and allows us to control for the endogeneity of the FTA effects as well as for multilateral resistance factors. See Baier and Bergstrand, 2007; Eicher *et al*., 2012; and Head and Mayer, 2015. We conclude that the EaP countries gain significantly from free trade agreements with the EU, but little if anything from free trade agreements with Russia. The findings show that the quality of institutions plays an important role in explaining the greater impact of both deep and shallow free trade agreements with the EU. Moreover, a customs union with Russia provides negligible benefits and it would preclude having a free trade agreement also with the EU. The EaP States stand to gain significantly from free trade agreements with each other. The rough relative magnitudes of these estimated gains are supported by other studies (Kohl, 2014).

The significant potential benefits of integration justify major efforts by the EU to ensure that all Eastern partner countries retain their sovereign option to sign and to implement DCFTAs with the EU should they so wish. Failure to do this would have serious consequences for the credibility of the EU. This does not prevent the EaP countries from having free trade agreements also with Russia and each other. Free trade with both East and West is their best trade policy. The EU must therefore continue to support Ukraine, Georgia, and Moldova to implement their DCFTAs and keep the door open for Armenia, Azerbaijan, and Belarus.

The EU's soft power by itself is ineffective and a response to Russia's hard power requires some degree of coordination with the hard power of the U.S.A. A key instrument available to the EU is to mobilise the peace keeping resources of the United Nations and the Organization for Security and Co-operation in Europe (OSCE) to a significantly larger extent than at present. International organizations are needed to separate the warring factions, maintain law and order and arrange referenda so that the populations in disputed regions can express their views concerning national borders in a free and democratic manner. The EU must provide decision-makers in Russia with the prospect of cooperation rather than continue conflict. It can do this by offering Russia to negotiate a DCFTA with it in due course, thereby creating the "single economic space from Lisbon to Vladivostok" as Russia has requested. The Eastern Partnership should be an instrument to make the region a zone of cooperation rather of conflict.

Gylfason, T., I. Martínez Zarzoso, and P. M. Wijkman (2015), "Free trade agreements, institutions and the exports of Eastern Partnership countries," Journal of Common Market Studies (forthcoming).

Prof. Inmaculada Martínez-Zarzoso

The Disposition Effect in Team Investment Decisions: Experimental Evidence

Privatanleger neigen auf Finanzmärkten häufig dazu, dass sie ihren Gefühlen erliegen und Investitionsentscheidungen aus dem Bauch heraus treffen. Eine Folge dessen ist das Auftreten von sogenannten Entscheidungsheuristiken und irrationalem Anlegerverhalten. Eines dieser Phänomene ist der weitverbreitete „Dispositionseffekt". Dieser beschreibt ein Verhalten, bei dem Anleger dazu tendieren, Verlustaktien zu lange zu halten und Kursgewinne zu schnell zu veräußern. Dieses Anlagemuster kann als irrational angesehen werden, da ein zu langes Halten von Aktien mit schlechten Entwicklungen oft zu noch größeren Verlusten führt. Außerdem entgehen den Investoren so mögliche Gewinne aus anderen Anlagen.

Die „Behavioral-Finance" Literatur begründet das Auftreten des Effekts dadurch, dass ein referenzpunktabhängiges Verhalten vorliegt. Demnach konzentrieren sich Anleger nach dem Kauf von Aktien auf deren Kaufpreis. Liegt der Aktienkurs unterhalb des Kaufpreises, so nimmt die Risikoneigung der Investoren zu und die Verkaufsbereitschaft sinkt. Wohingegen die Risikoneigung stark abnimmt und Aktien häufig verkauft werden, sobald der Kurs oberhalb des Kaufpreises notiert. Dieses Verhalten wechselnder Risikoneigungen wird durch die sogenannte „Prospect Theory" von Kahneman und Tversky (1979) begründet. Der Grund warum an Verliereraktien festgehalten wird, liegt häufig an Emotionen wie das Bedauern und die Freude über falsche und richtige Investitionsentscheidungen. Summers und Duxbury (2012) zeigen in einem experimentellen Forschungsartikel, dass Anleger Verliereraktien nicht verkaufen, um das Bedauern über falsche Investitionsentscheidungen zu vermeiden. Gleichzeitig verkaufen sie Gewinneraktien sehr schnell, da sie sich dadurch bestätigt fühlen.

Zahlreiche empirische Studien haben das Auftreten des Dispositionseffekts bereits eindrucksvoll demonstriert. Es zeigt sich, dass der Effekt nicht nur bei privaten Anlegern sondern auch bei professionellen Anlegern auftritt. In der Praxis werden Investitionsentscheidungen oftmals in Anlageteams getroffen. Interessant ist dabei die Analyse, ob mehrere Köpfe zu klügeren Entscheidungen kommen, oder ob Emotionen durch Diskussionen im Gruppenkontext verstärkt werden.

In meiner experimentellen Forschungsarbeit vergleiche ich hierzu das Auftreten des Dispositionseffekts von Anlageteams und Einzelanlegern. Ein spezieller Fokus ist dabei die Analyse der Rolle von Emotionen für die Entstehung von Dispositionseffekten in Anlegerteams.

In der Teamumgebung des Experiments diskutieren zwei Anleger ihre Investitionsentscheidungen. Im Gegensatz dazu besteht keine Beratungsmöglichkeit in der Einzelumgebung. Die Anleger können im Zuge des Experiments Aktien kaufen und verkaufen, was die Messung von Dispositionseffekten ermöglicht. Darüber hinaus kann in der Laborumgebung auf Anlageremotionen kontrolliert werden. Dabei untersucht die vorliegende Studie das Bedauern nach Kursverlusten, sowie die Freude nach Kursgewinnen.

Das Hauptergebnis der Arbeit ist, dass Dispositionseffekte sowohl bei Einzelanlegern und Teamanlegern auftreten. Interessanterweise wird der Dispositionseffekt in Anlegerteams verstärkt. Das Ergebnis wird speziell dadurch getrieben, dass Teams große Probleme haben, Verlustaktien zu verkaufen. Gleichzeitig tendieren Teams auch dazu, verstärkt Gewinne zu verkaufen. Es stellt sich heraus, dass Emotionen verstärkt in einem sozialen Kontext wirken. Teams geben an, dass sie ein signifikant größeres Bedauern nach Verlusten und eine größere Freude nach Gewinnen empfinden. Regressionsanalysen zeigen auf, dass Teams einen stärkeren Dispositionseffekt aufweisen, da sie stärkeres Bedauern bei Kursverlusten empfinden. Die Folge ist, dass sie daher weniger bereit sind, Verlustaktien zu verkaufen.

Die Ergebnisse unterstreichen die wichtige Rolle von Emotionen bei Anlageentscheidungen. Weiterhin liefern sie neue Erkenntnisse in der Analyse von Gruppeninvestitionsentscheidungen. Die Daten deuten darauf hin, dass Anlegerteams möglicherweise zur Polarisierung neigen. Letzteres kann die Wirkung von Emotionen im Gruppenkontext verstärken. Dies kann interessante Erkenntnisse bei „Nudge"-Entscheidungen liefern, da sich zeigt, dass diese Maßnahmen auch zu unerwünschten Ergebnissen führen können.

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